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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,315	02/06/2004	Jae-Dong Yoon	0630-1953P	6483

2292 7590 01/25/2006

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EXAMINER	
EWALD, MARIA VERONICA	
ART UNIT	**PAPER NUMBER**
1722	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,315	YOON ET AL.	
	Examiner	Art Unit	
	Maria Veronica D. Ewald	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 February 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

13. Applicant's election with traverse of claims 1 – 15 in the reply filed on December 28, 2005 is acknowledged. The traversal is on the ground(s) that the Examiner has not shown that Groups I, II and III are both distinct *and independent*. This is not found persuasive because under the statute, the claims of an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either *independent or distinct* (MPEP § 803). Thus, in this case, in the restriction election filed on November 28, 2005, the Examiner has shown that the independent claims of Groups I, II and III are distinct in that they each has a separate classification in the art. Furthermore, the Examiner has shown that the material can be made by another process and the apparatus can be used to perform another process, such as compression molding.

Therefore, the requirement is still deemed proper and is therefore made FINAL. Claims 16 – 22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on December 28, 2005.

Drawings

14. Figures 1 – 3 should be designated by a legend as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figure 7 is objected to because the third block states "injecting foamispace of..." This should be corrected to "injecting foam in space of..." Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If

the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwami, et al. (U.S. 5,468,141). Iwami, et al. teach a fixed mold having a passage for introducing a fluid therethrough and an internal space (item 5 – figure 1; column 9, lines 52 – 55, 60 – 61); a movable mold detachably attached to the fixed mold and forming a molding space together with the internal space of the fixed mold (column 9, lines 53 – 55); and a flow accelerating means provided on an inner wall of the molding space and accelerating flow of the fluid wherein the flow accelerating means is a solid coating material for increasing insulation of the fluid and reducing a flow resistance of the fluid (column 2, lines 55 – 60; column 7,lines 60 – 65; column 8, lines 43 – 49).

With respect to claims 3 – 7, the reference further teaches that the solid coating material is a polymer coating material wherein the polymer is PEEK (column 8, lines 56 – 60; column 9, lines 1 – 2); wherein the polymer coating material is PTFE, PE and methacrylates (column 7, lines 20 – 25, 40 – 43); wherein the solid coating material is a

ceramic coating material which is one of aluminum oxide and zirconium oxide (column 6, lines 8 – 10; column 8, lines 19 – 21).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwami, et al. in view of Smith (U.S. 5,076,339). Iwami, et al. teach the characteristics previously described but do not teach that the coating material is a solid lubricant.

In a method to cast metal parts using a die casting machine, in which a plunger is movable within a pressure chamber and advances to inject molten metal into a die cavity between two die halves (column 3, lines 5 – 12), Smith teaches that the pressure chamber is coated with a lubricating composition to reduce frictional and shear forces and deters the molten metal from sticking to the shot sleeve (column 3, lines 55 – 57; column 4, lines 5 – 7). The lubricating composition is comprised of an inorganic solid lubricant, which have low coefficients of friction (column 5, lines 30 – 31). Inorganic lubricants (i.e., graphite, molybdenum disulfide) also provide metal-to-metal lubrication (i.e, between the shot sleeve and the plunger) and insulation between the molten metal and the shot sleeve (column 5, lines 47 – 50). This reads on the Applicant's claims that

the coating material be a solid lubricant, wherein the lubricant is one of graphite, molybdenum and disulfide.

It would have been obvious at the time of the Applicant's invention to modify the mold of Iwami, et al. such that the coating applied to the mold surface be a solid lubricant such as molybdenum disulfide for the purpose of reducing frictional and shear forces, to provide metal-to-metal lubrication between the cavity halves of Iwami, et al. and also to provide insulation between the cavity surface and the molten resin, which also deters the resin material from sticking to the mold surface.

Claims 10 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwami, et al. in view of Higashida, et al. (U.S. 6,099,287). Iwami, et al. teach the characteristics previously described but do not teach that the coating material be a solid metal.

In a method to mold optical disks, Higashida, et al. teach the use of a stamper which is introduced into a mold (column 1, lines 22 – 24). Subsequently, resin is injected into the mold (column 1, lines 24 – 25). The stamper is coated with a wear-preventing material formed from metal, which can be a thin disk of indium, lead, tin or the like (column 4, lines 46 – 50). The wear-preventing material absorbs forces and shearing stresses during use of the stamper and also prevents deformation of the stamper, extending its useful life (column 4, lines 33 – 40). This reads on the Applicant's claims that the coating material be formed of a solid metal, one of lead, indium, cadmium, tin and silver.

It would have been obvious at the time of the Applicant's invention to modify the mold of Iwami, et al. such that the coating applied to the mold surface be a solid metal, one of lead, indium, cadmium, tin and silver, for the purpose of absorbing forces and shearing stresses exhibited during molding and thereby, preventing any deformation of the mold surfaces.

Claims 12 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr., et al. (U.S. 3,674,401) in view of Iwami, et al.

Annis, Jr., et al. teach a molding system comprising a cylinder having an inlet and an outlet (item 2 – figure 1; column 3, lines 1 – 2); a screw installed inside the cylinder and making a mold material and a mixture including a plastic introduced into the inlet of the cylinder flow toward the outlet (item 6 – figure 1; column 3, lines 1 – 5); a heater for heating the mold material and mixture introduced in the cylinder (column 3, lines 10 – 15, 34 – 36); a fixed mold having a certain space therein and connected to the outlet of the cylinder (item 42 – figure 1; item 64 – figure 3); a movable mold detachably coupled to the fixed mold and forming a molding space together with the internal space of the fixed mold (item 44 – figure 1; item 62 – figure 3), wherein there is a foaming agent supplier provided at the side of the inlet of the cylinder to supply a foaming agent into the cylinder (column 4, lines 1 – 5); wherein a gas supplier is provided at the side of the inlet of the cylinder to supply a gas into the cylinder (column 3, lines 65 – 72).

Annis, Jr. et al., however do not teach that the mold space has a flow accelerating means.

In a method to form a product via injection molding, using a pair of mold halves, in which the cavity formed therebetween is filled with resin, Iwami, et al. teach that the mold surfaces are coated with an insulating layer or a release-functioned insulating layer (column 2, lines 55 – 60). This layer may be made from ceramic, heat-resistant plastic, glass, metal oxides or fluorocarbon resins (column 3, lines 1 – 25). Mold block surfaces with a coating or layer made from these materials have elevated temperatures, allowing good adherence to the resin (column 5, lines 45 – 48). Without such coatings, when the molten resin is introduced into the cavity, the resin quickly gives off heat, and cools, thereby creating a premature cooling of the resin on its surface (column 1, lines 57 – 59). This premature or rapid cooling prevents the resin from coming into full contact with any patterned cavity surface (column 1, lines 58 – 60). This reads on the Applicant's claims that there is a flow accelerating means provided on an inner wall of the molding space and accelerating flow of a fluid, wherein the flow accelerating means is a solid coating material for increasing insulation of the fluid and reducing a flow resistance of the fluid.

It would have been obvious at the time of the Applicant's invention to modify the molding apparatus of Annis, Jr., et al. to incorporate the coating means of Iwami, et al. on the mold block surfaces for the purpose of preventing any premature cooling or solidifying of the resin before contacting the entire mold surface by ensuring the mold surface temperature remains elevated as taught by Iwami, et al.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph S. Del Sole
1/23/06
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